



# FortiExtender Release Notes

**VERSION v3.0.1**

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FortiExtender v3.0.1 Release Notes

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## Change Log

Date	Change Description
2016-08-17	Updated from v3.0.0 to v3.01 for the second release. The branch point is build 0084.
2016-04-06	Initial Release.

# Introduction

This document provides the following information for FortiExtender build 0084:

- [Supported Models](#)
- [What's new in FortiExtender v3.0.1](#)
- [Model Specific New Features](#)
- [Special Notices](#)
- [Upgrade Information](#)
- [Product Integration and Support](#)
- [Resolved Issues](#)
- [Known Issues](#)

For more information on upgrading your FortiExtender device, see the *FortiExtender Administration Guide*.

## Supported Models

FortiExtender supports the following models on GA build 64 or above: FEXT-20D, FEXT-40D-INTL, and FEXT-40D-NAM.



The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

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## What's new in FortiExtender v3.0.1

The following is a list of new features and enhancements in FortiExtender v3.0.1

- **Enhanced FortiExtender CLI/ GUI** to help improve configuration and diagnose commands. The following commands are currently supported:
  - Configure FortiExtender networking parameters with the following commands:

```
config connection addr-mode static| dhcp
config connection static-ip-addr x.x.x.x
config connection static-ip-netmask x.x.x.x
config connection static-ip-gw x.x.x.x
```
  - Configure FortiExtender networking parameters with the following command:

```
config connection discovery-type auto| static | broadcast
```
  - Show the system version with the following command:

```
get system version
```
  - Show the FortiGate connection status with the following command:

```
get extender status
```
  - Show the modem status with the following command:

```
get modem status
```

- Show system status with the following command:

```
get system status
```

- The new FortiExtender 20-D GUI home page is displayed below:

The screenshot displays the FortiExtender 20-D GUI home page. The top navigation bar includes links for System, Modem, Help, and a user profile (admin). The main content area is divided into several sections:

- General:** A table showing system information:
 

Host Name	FXT02D4N15000010 <a href="#">[Change]</a>
Serial Number	FXT02D4N15000010
Firmware Version	FortiExtender-20D v3.0.build0084.160811 (Interim)
System Time	Wed Aug 17 18:39:53 UTC 2016
Uptime	24 min(s)
- Device Info:** A table showing network and device details:
 

IP Address	192.168.1.112
Network Mask	255.255.255.0
Gateway IP	192.168.1.99
IP Address	192.168.1.99
Device Name	FGT60D4613057602
State	connected
- Hardware:** Two gauge charts showing CPU usage at 0.0% and Memory usage at 14.0%. A **RESTART** button is present.
- Network Configuration:** A table for network settings:
 

Address Mode	<input checked="" type="radio"/> Static <input type="radio"/> DHCP
Default Local IP Address	192.168.1.2
Default Local Network Mask	255.255.255.0
Default Gateway IP	192.168.1.1
- CAPWAP Configuration:** A table for CAPWAP settings:
 

Discovery Type	<input checked="" type="radio"/> Auto <input type="radio"/> Static <input type="radio"/> Broadcast
Extender Controller Port	5246
Extender Data Port	25246
FortiGate IP	192.168.1.99
- Firmware Upgrade:** A section for upgrading firmware:
 

Step 1: Firmware	<input checked="" type="radio"/> Extender
Step 2: File	<a href="#">Choose File</a> No file chosen

- The FortiExtender 20-D GUI status page is displayed below:

The screenshot displays the FortiExtender 20-D GUI status page, specifically the **Modem Status** section. It shows a table of modem information:

Manufacture	Novatel Wireless Incorporated
Product	Novatel Wireless 4G
Model	USB551L
Revision	1.48 SVN 11 [2012-04-30 18:44:34]
IMSI	311480057536097
PIN Status	READY
Service	LTE
Signal Strength(%)	57
Signal Strength(dBm)	-78
Connection Status	disabled
Profile 1	vzwims
Profile 2	vzwadmin
Profile 3	VZWINTERNET
Profile 4	vzwapp
NAI(Network Access Identifier)	4084973416@vzims.com
User Profile	0 Enabled
Primary HA	255.255.255.255
Secondary HA	255.255.255.255

- The new FortiExtender-40D GUI home page is displayed below:

FortiExtender-40D GUI Home Page

System Modem Help admin

**General** REFRESH

Host Name	FX04DN4N16000233 <a href="#">[Change]</a>
Serial Number	FX04DN4N16000233
Firmware Version	FortiExtender-40D v3.0.build0084.160811 (Interim)
System Time	Wed Aug 17 19:12:20 UTC 2016
Uptime	2 min(s)

**Device Info** REFRESH

IP Address	192.168.1.113
Network Mask	255.255.255.0
Gateway IP	192.168.1.99
IP Address	192.168.1.99
Device Name	FGT60D4613057602
State	connected

**Hardware** RESTART

CPU 9.0%

Memory 15.0%

**Network Configuration** REFRESH APPLY

Address Mode: ☐ Static ☒ DHCP

Default Local IP Address: 192.168.1.2

Default Local Network Mask: 255.255.255.0

Default Gateway IP: 192.168.1.1

**CAPWAP Configuration** REFRESH APPLY

Discovery Type: ☒ Auto ☐ Static ☐ Broadcast

Extender Controller Port: 5246

Extender Data Port: 25246

FortiGate IP: 192.168.1.1

**Firmware Upgrade** RESET UPDATE

Step 1: Firmware

- ☒ Extender
- ☐ Sim1 Firmware
- ☐ Sim1 PRI
- ☐ Sim2 Firmware
- ☐ Sim2 PRI

Step 2: File  No file chosen

- The new FortiExtender-40D status page is displayed below:

FortiExtender-40D GUI Status Page

System Modem Help admin

**Modem Status** REFRESH

Manufacture	Sierra Wireless, Incorporated
Product	Sierra Wireless Minipci modem
Model	EM7355
Revision	GENEU-4G_005.026_000;SWI9X15C_05.05.58.00 r27038 carmd-fwbuild1
IMSI	310410596203412
PIN Status	N/A
Service	WCDMA
Signal Strength(%)	-61
Signal Strength(dBm)	-61
Connection Status	CONNECTED
Profile 1	
Profile 2	
Profile 3	
Profile 4	
NAI(Network Access Identifier)	N/A
User Profile	0 Disabled
Primary HA	0.0.0.0

## Model Specific New Features

### FortiExtender-40D

The FortiExtender-40D is a new FortiExtender model with an internal modem, which is similar to the FortiExtender-100A. In comparison with the FortiExtender-100A, the FortiExtender-40D has the following new features and improvements:

- LTE support
- Global operator support with Firmware upgrades

- Dual SIM function support
- Modem Firmware upgrade and switch support via GUI/CLI only
- Individual SIM slot modem firmware and PRL load only via GUI and CLI commands
- Dual SIM failover support
- SIM hot plug support
- Supports all the same Fortigate configurations and diagnose commands

For the FortiExtender-40D, the following FortiExtender CLI commands are supported:

- CLI command to config the max time to elapse before system reboot during call connection
- CLI command to set the active SIM slot
- CLI command to set modem operating mode

## Noteworthy Improvements over FortiExtender 3.0.0

There are several improvements in FortiExtender 3.0.1 in comparison with the previous version of FortiExtender 3.0.0. These include the following improvements for the FortiExtender-40D:

- After upgrading FortiExtender firmware, modem firmware, or PRI (configuration) files, the FortiExtender unit does not require a reboot/ power cycle.
- Configurable parameters like APN, username and password for LTE Connection call setups.
- SIM insertion/removal notifications to FortiGate for SYSLOG generation.
- Signal strength information (RSSI, SINR, RSRQ, RSRP, BAND) notification to FortiGate for SYSLOG generation.



# Special Notices

This section highlights some of the operational changes that administrators should be aware of in v3.0.1.

## FortiExtender-20D

FortiExtender-20D requires an external USB modem from the FortiExtender-20D supported modem list on ["Product Integration and Support" on page 1](#).

## FortiExtender-40D-NAM

FortiExtender-40D-NAM has a built-in Sierra internal modem EM7355 for North America.

FortiExtender-40D-NAM is capable of holding two SIM cards, but can only use one SIM card at a time. The FortiExtender-40D-NAM is also capable of working with just one SIM card inserted in either SIM card slot.

For faster deployment options, the FortiExtender-40D-NAM model stores two modem firmwares in its flash which can be used if compatible with any of the SIM cards inserted.

See the details below:

- Generic modem software capable of working on AT&T and T-Mobile Networks.
- Verizon Specific software capable of working only on Verizon Network.
- For operating it on SPRINT or any other Canadian Networks the modem has to be reflashed.

The FortiExtender-40D-NAM will try to activate the Internet connection with SIM1 using one of the compatible modem firmwares stored on the flash. If SIM1 fails, it will then use SIM2.

## FortiExtender-40D-INTL

FortiExtender-40D-INTL has a built in Sierra internal modem EM7305 for countries outside of North America.

FortiExtender-40D-INTL is capable of holding two SIM cards, but can only use one SIM card at a time. The FortiExtender-40D-INTL is also capable of working with just one SIM card inserted in either SIM card slot.

For faster deployment options, the FortiExtender-40D-INTL model stores 2 modem firmware in its flash which can be used if compatible with any of the SIM's inserted.

See the details below:

- Generic modem software networks like SFR, FREE, 02, and etc.
- Vodaphone Specific software capable of working on only Vodaphone Network.
- For operating on any other ISP Networks the modem has to be reflashed.

The FortiExtender-40D-INTL will try to activate the Internet connection with SIM1 using one of the compatible modem firmwares stored on the flash. If SIM1 fails, it will then use SIM2.

## Modem firmware compatibility

The modem firmware running on the Sierra built-in internal modem must be compatible with the SIM card inserted. Often this requires that you program it with the compatible operator specific modem firmware.

## Access Point Name

Access Point Name configuration for the FEXT models is available from the FortiGate CLI and GUI.

# Upgrade Information

## Upgrading to FortiExtender v3.0.1

FortiExtender-20D and FortiExtender-40D are capable of operating on v3.0.0 GA build 64 and above.

The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

## Firmware upgrade procedure

### Firmware Information:

The Sierra EM7355/EM7305 Modem Software comprises of two files:

- A PRL file with the file name ending ".nvu"
- A firmware file with the ending ".cwe"

Both files are required to be flashed onto the Modem to connect to the operator of your choice. See the following resources:

- EM7305 modems with operator specific software: <https://support.fortinet.com>
- EM7355 modems with operator specific software: <https://support.fortinet.com>

### Firmware upgrade via the FortiExtender GUI:

1. Login to the web-based GUI of the FortiExtender with the default credentials. For the username enter *admin* and leave the password blank.
2. In the FortiExtender GUI from in the bottom right corner, click **Choose Firmware** select the corresponding SIM1 firmware from the dropdown menu and flash it. I.e. the firmware ending in ".cwe".
3. Select the corresponding SIM1 PRL, i.e the ".nvu" file from the list (as per ISP).
4. Then click the upwards pointing green arrow at the bottom to complete the firmware upgrade.
5. After the upgrade is completed, click on the **RESTART** button and confirm with a **YES**.
6. This procedure can take 3 to 5 minutes to finish. Wait for the reboot and make sure the SIM1 slot is holding the SIM.
7. If you are using two SIM cards, repeat these instructions for your second SIM card by selecting SIM2 PRL and SIM2 firmware options.

## Firmware image checksums

The MD5 checksums for all Fortinet software and firmware releases are available at the Fortinet Customer Service & Support portal located at <https://support.fortinet.com>. After logging in select **Download > Firmware Image Checksums**, enter the image file name including the extension, then select **Get Checksum Code**.

# Product Integration and Support

## Modes of operation

FortiExtender supports Connected UTM mode of operation only.

### Connected UTM mode

This is the default mode of operation where the FortiGate provides centralized management of the FortiExtender infrastructure. In this mode the device discovers the FortiGate using the CAPWAP protocol and WAN traffic is tunneled to the FortiGate's wireless WAN virtual interface. For connect UTM mode, FortiGates must run FortiOS v5.2.0 or later.

## FortiExtender v3.0.1 support

The following table lists FortiExtender product integration and support information.

FortiExtender 2.0.1 Support	
Web Browsers	Microsoft Internet Explorer versions 10 and 11
	Mozilla Firefox version 33
	Other web browsers may function correctly, but are not supported by Fortinet.
FortiOS/FortiOS Carrier	v5.2.0 and later
FortiManager	v5.0.7 and later
	v5.2.0 and later

## USB modem support

The following tables list USB modems that are supported for various models.

### FortiExtender-20D

The following table lists USB modems that are supported by the FortiExtender-20D:

Brand	Modem Model	Operator / Area
Netgear	340U	AT&T (USA)
Sprint	341U	Sprint (USA)
Sierra	313	AT&T (USA)
Pantech	295	Verizon
ZTE	820B	Claro (Puerto Rico)
ZTE	MF683	T-Mobile
Novatel	MF620L	Verizon
Huawei	E398	Any GSM/LTE
Huawei	UMG1691	T-Mobile
Huawei	E173	Any GSM, 3G, HSPA network
Huawei	E3276	Any GSM/LTE
TPLINK	MA260	Any GSM/3G
TPLINK	MA180	Any GSM/3G
ZTE	K3520-Z	HSDPA, WCDMA
ZTE	K3563-Z	
ZTE	K3565-Z	HSDPA 3.6/0.38
ZTE	K3570-Z	HSDPA 3.6/0.38
ZTE	K3571-Z	HSDPA 7.2/0.38
ZTE	K4505-Z	HSPA+ 21.6/5.76
ZTE	K5006-Z	LTE CAT3
ZTE	MF30	HSDPA 7.2 HSUPA 5.76
ZTE	MF60	HSPA+ 21.6/5.76
ZTE	MF100	HSDPA 3.6/0.38
ZTE	MF110	HSDPA 7.2 HSUPA 5.76

Brand	Modem Model	Operator / Area
ZTE	MF112	HSDPA 7.2 HSUPA 2.0
ZTE	MF170	HSDPA 3.6/0.38
ZTE	MF190	HSDPA 7.2 HSUPA 2.0
ZTE	MF626	HSDPA 3.6/0.38
ZTE	MF627	HSDPA 7.2 HSUPA 5.76
ZTE	MF632	HSDPA 7.2 HSUPA 3.6
ZTE	MF633	HSDPA 7.2 HSUPA 5.76
ZTE	MF636	HSDPA 7.2 HSUPA 5.76
ZTE	MF637	HSDPA 7.2 HSUPA 5.76
ZTE	MF637U	HSDPA 7.2 HSUPA 5.76
ZTE	MF662	HSPA+ 21.6/5.76
ZTE	MF668	HSPA+ 21.6/5.76
ZTE	MF668A	HSPA+ 21.6/5.76
ZTE	MF669	HSPA+ 21.6/5.76
ZTE	MF680	DC-HSPA+ 42.2/5.76
ZTE	MF683	DC-HSPA+ 42.2/5.76
ZTE	MF820D	LTE CAT3
ZTE	MF821	LTE CAT3
ZTE	MF821D	LTE CAT3
ZTE	MF880	LTE CAT3
ZTE	MT505UP	HSUPA
ZTE	MT512HS	HSDPA 7.2 HSUPA 3.6
ZTE	MT8205	LTE CAT3
HUAWEI	B81	HSDPA 7.2 HSUPA 5.76

Brand	Modem Model	Operator / Area
HUAWEI	D33HW	HSPA+ 21.6/5.76
HUAWEI	D41HW	DC-HSPA+ 42.2/11.5
HUAWEI	E153	HSDPA 3.6/0.38
HUAWEI	E156G	HSDPA 3.6/0.38
HUAWEI	E171	HSDPA 7.2 HSUPA 5.76
HUAWEI	E173	HSDPA 7.2 HSUPA 5.76
HUAWEI	E180V	HSDPA 7.2 HSUPA 5.76
HUAWEI	E200	HSDPA 3.6
HUAWEI	E261	HSDPA 7.2 HSUPA 5.76
HUAWEI	E270+	HSPA+ 21.6/5.76
HUAWEI	E303F	HSPA+ 21.6/5.76
HUAWEI	E352	HSPA+ 21.6/5.76
HUAWEI	E353W-u1	HSPA+ 21.6/5.76
HUAWEI	E367	DC-HSPA+ 28.8/5.76
HUAWEI	E372	DC-HSPA+ 42.2/5.76
HUAWEI	E389	LTE CAT3
HUAWEI	E392	LTE CAT3
HUAWEI	E398	LTE CAT3
HUAWEI	E398u-15	LTE CAT3
HUAWEI	E1552	HSDPA 3.6/0.38
HUAWEI	E1690	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1691	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1692	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1731Bu-1	HSPA+ 21.6/5.76

Brand	Modem Model	Operator / Area
HUAWEI	E1762	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1800	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1815	HSPA+ 21.6/5.76
HUAWEI	E1820	HSPA+ 21.6/5.76
HUAWEI	E1823	HSPA+ 21.6/5.76
HUAWEI	E3131s-2	HSPA+ 21.6/5.76
HUAWEI	EC122	CDMA2000
HUAWEI	EC176-2	CDMA EV-DO Rev.A
HUAWEI	EC178	CDMA EV-DO Rev.A
HUAWEI	EC189	HSDPA 7.2 HSUPA 5.76
HUAWEI	EC306	HSPA+ 21.6/5.76
HUAWEI	EC1270	DC-HSPA+ 42.2/11.5
HUAWEI	Speedstick LTE	HSDPA 3.6/0.38
HUAWEI	E3372	LTE CAT4



# Resolved Issues

The following issues have been fixed in version v3.0.1. For inquiries about a particular bug, please contact [Customer Service & Support](#).

Bug ID	Description
N/A	[40D] Verizon's intermittent connection and disconnect data session has been resolved.
0382101	[20D] Huawei E3372 is now supported.
N/A	[40D] A new CLI command " <code>set connection maxretries</code> " allows users to set the maximum number of retries per call connection before the modem gets restarted to recover.
N/A	[40D] A new CLI command called " <code>set connection timeout</code> " has been added to allow users to adjust the session call timeout timer.
N/A	[40D] FortiExtender-40D now sends the status of LTE parameters, such as RSSI, SINR, RSRQ, RSRP, and BAND, to the FortiGate.
0377123	[40D] The modem firmware upload can now replace the previous image in flash.
N/A	[40D] To avoid link flip on the Verizon Network, the modem firmware upgrade no longer requires a FortiExtender reboot. The FortiExtender-40D now drops IP packets with a source address that does not match the modem's WAN IP address.
0372050	[40D] The FortiExtender-40D now maintains IP while the FortiGate has link monitor mode enabled on its WAN interfaces.
N/A	[40D] Upgraded the driver to Gobi 2.25.
N/A	[40D] SIM PIN configuration now supported.
N/A	[40D] Adds a hostname in the DHCP discover request.
N/A	[40D] Occasional Modem lockups caused by poor or transient signals are now recovered by power cycling the modem.
0370123	[40D] Sprint modems in CDMA mode now shows the correct home network.
0370041	[40D] Internet Data Session in CDMA only mode is supported.
0366678	[40D] The modem SINR is displayed on the FortiGate.
0369441	[40D] Addressed issues with occasional inaccurate reporting of LTE Signal Value.
0369444	[40D] WAN MAC address of the modem will now be shown on the FortiGate.
0366954	[40D] SSH from outside to the FortiGate now works in VLAN mode.

Bug ID	Description
0365952	[40D] FortiExtender's CAPWAP Configuration can now be dynamically changed without requiring FortiExtender to reboot.

# Known Issues

The following issues have been identified in v3.0.0. For inquiries about a particular bug, please contact [Customer Service & Support](#).

## FortiExtender 40D:

Bug ID	Description
N/A	[40D] The 40D Sprint Cert is missing fields like DRC, PN code, PN offset, and etc in the EVDO AT command output.
0381291	[40D ]The FortiExtender may not get connected during repeated dial/ hangups and commands executed manually, such as stopping LTE sessions during hangup, might take time.
0378848	[40D] Changing from CAPWAP to VLAN mode and vice-versa requires a reboot.
N/A	[40D] If the firmware download fails, manual recovery may be necessary.
N/A	[40D] The physical insertion of a SIM card requires a FortiExtender power cycle.



High Performance Network Security



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